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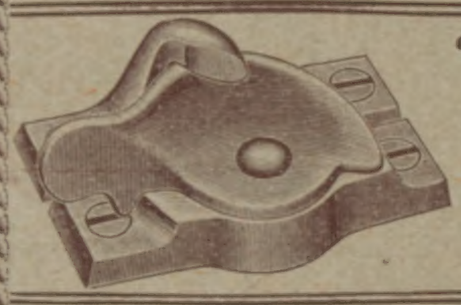

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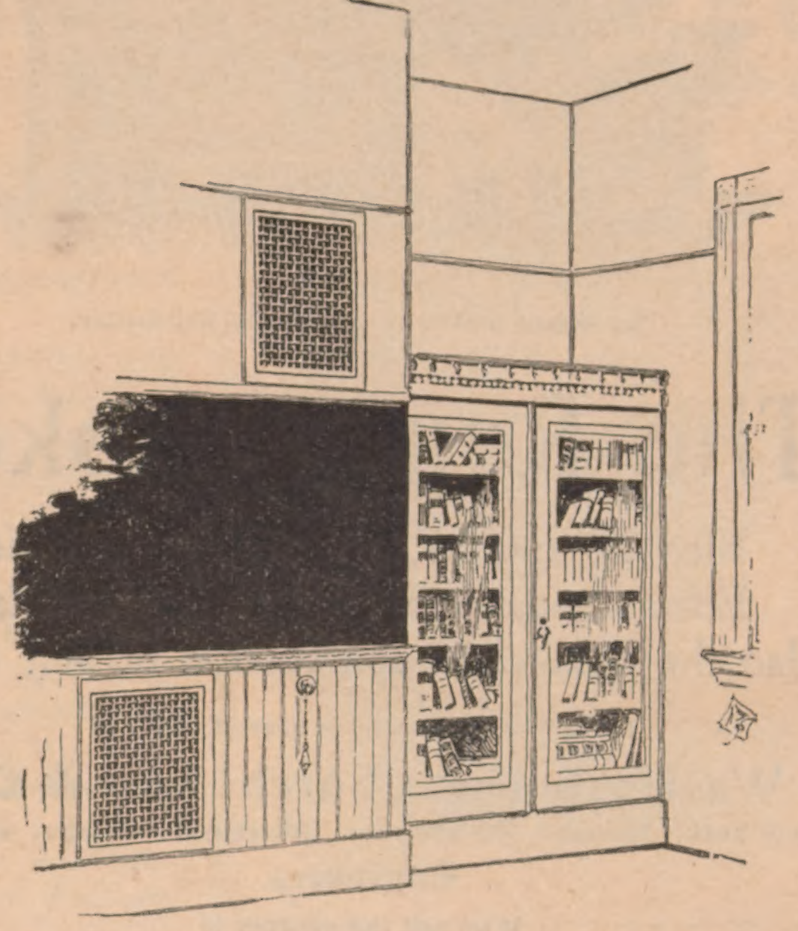

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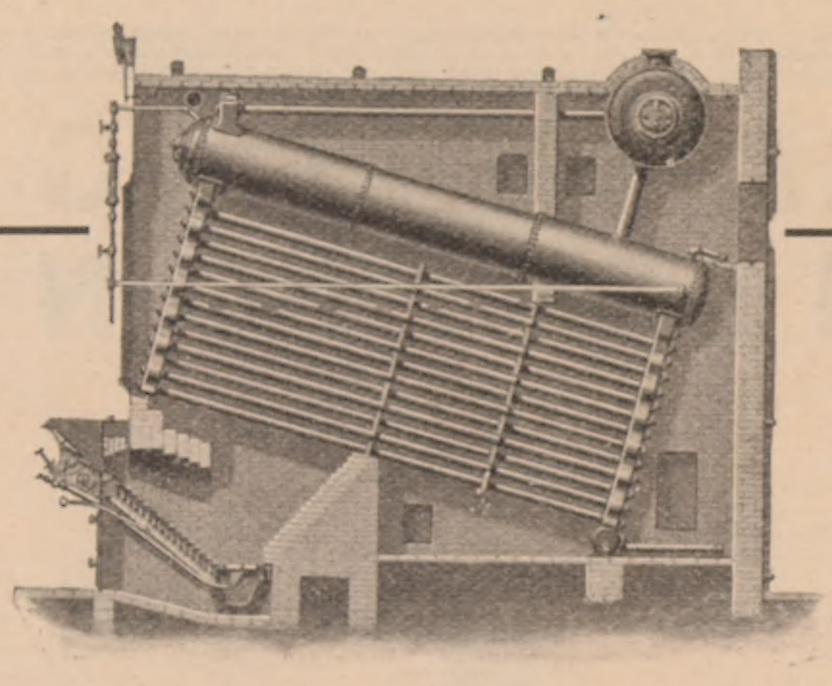

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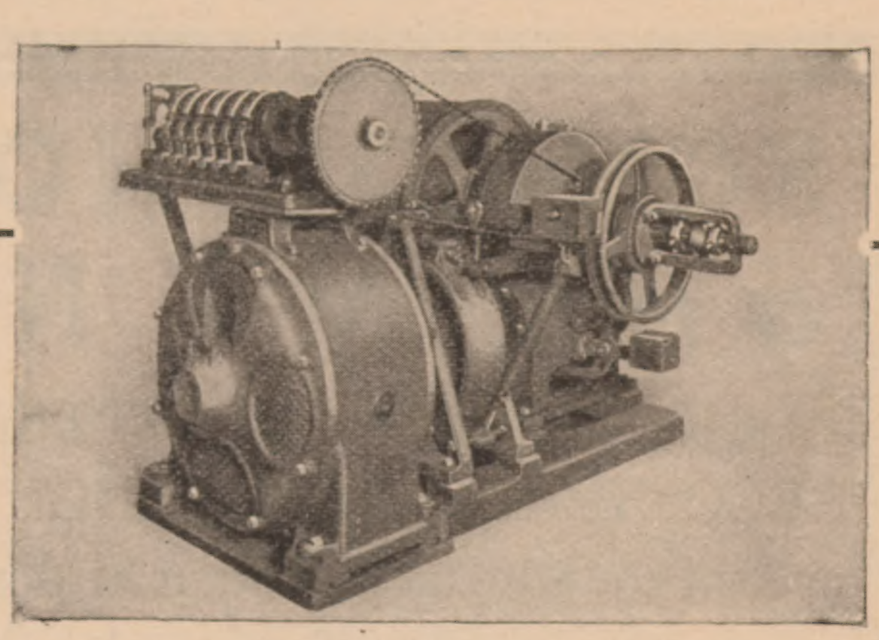

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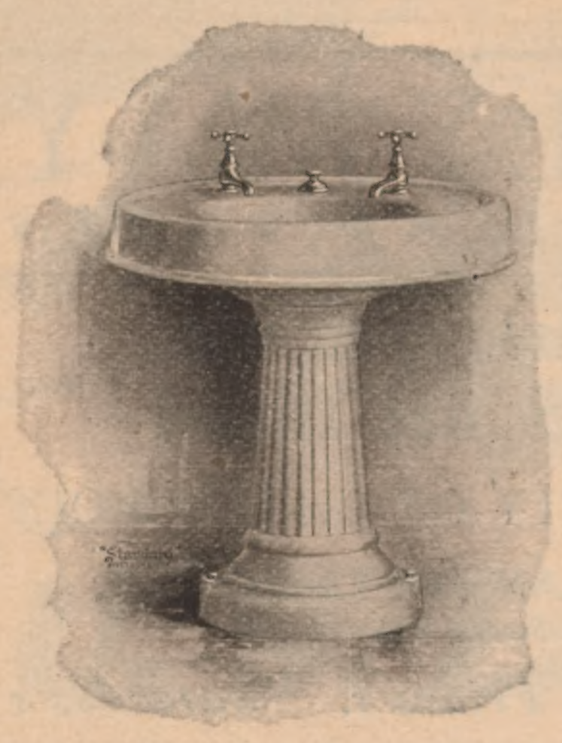

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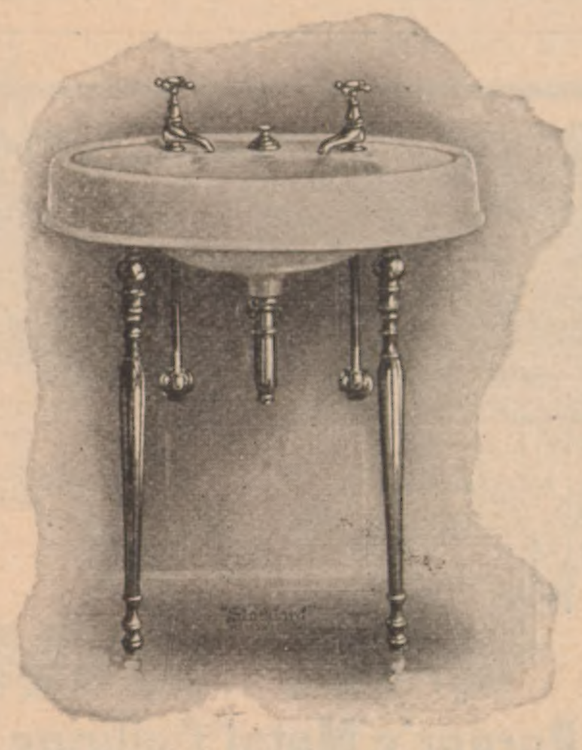

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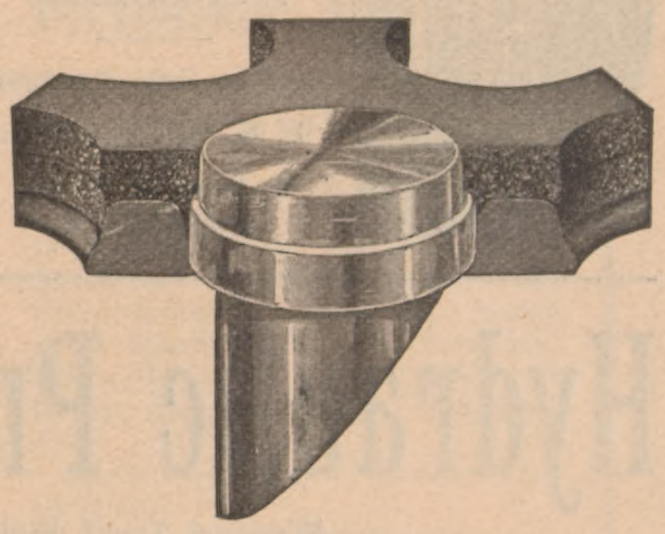

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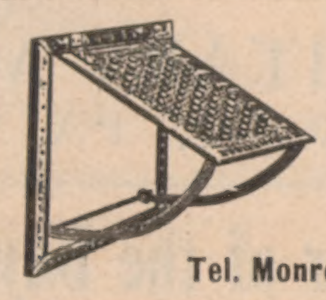

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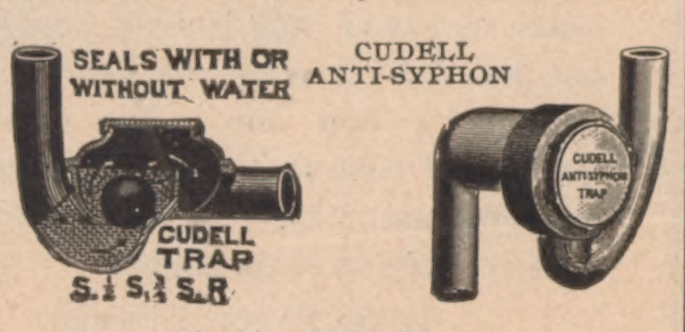

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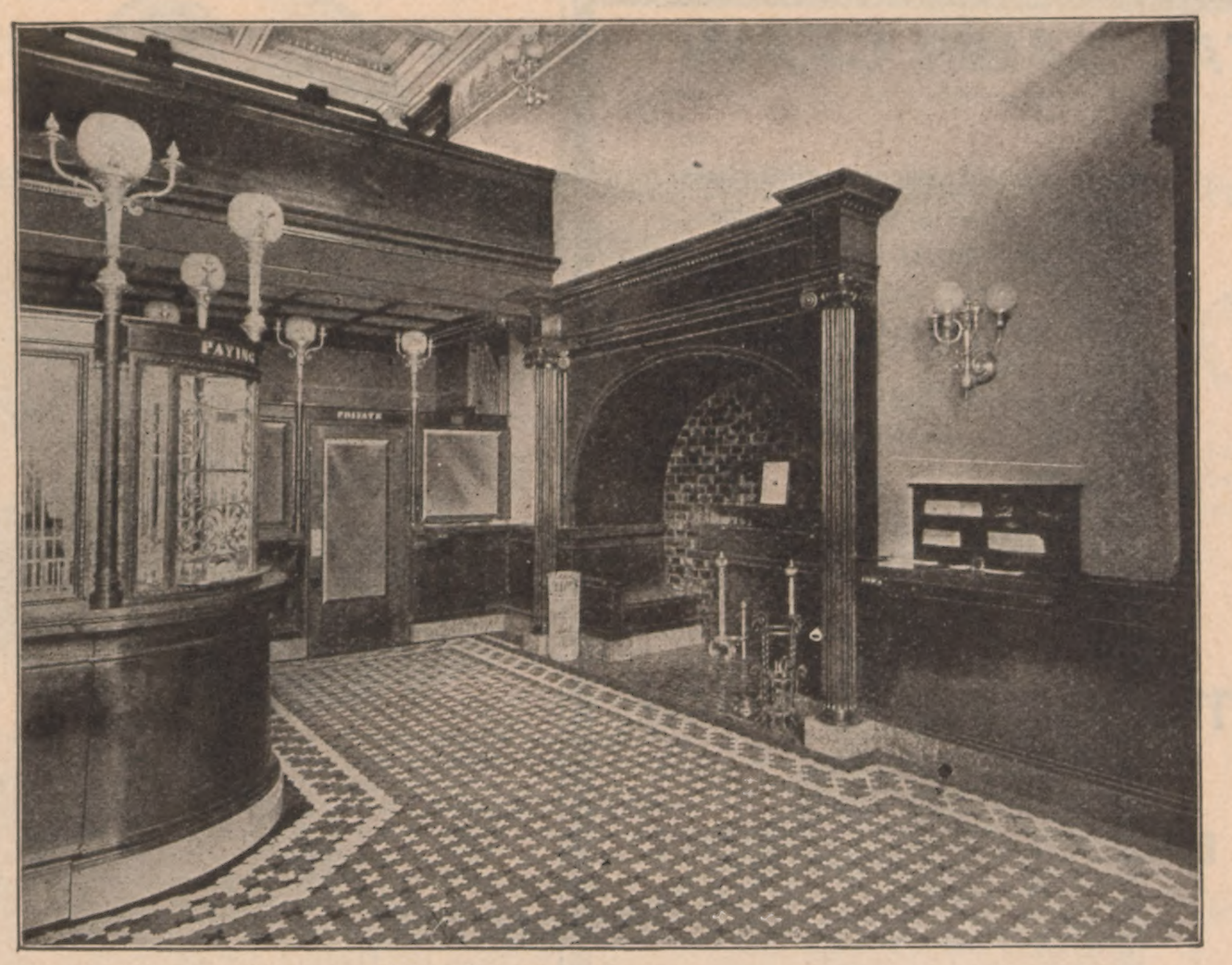

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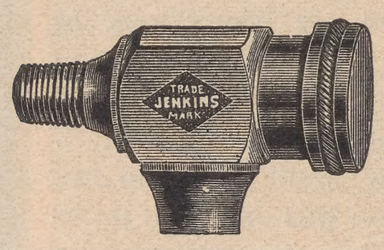

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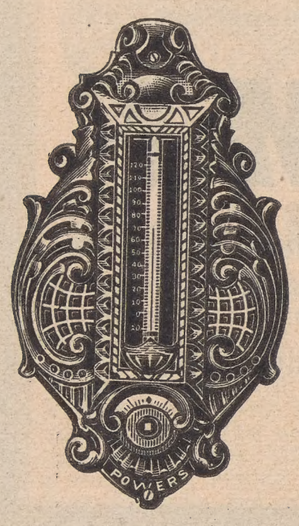

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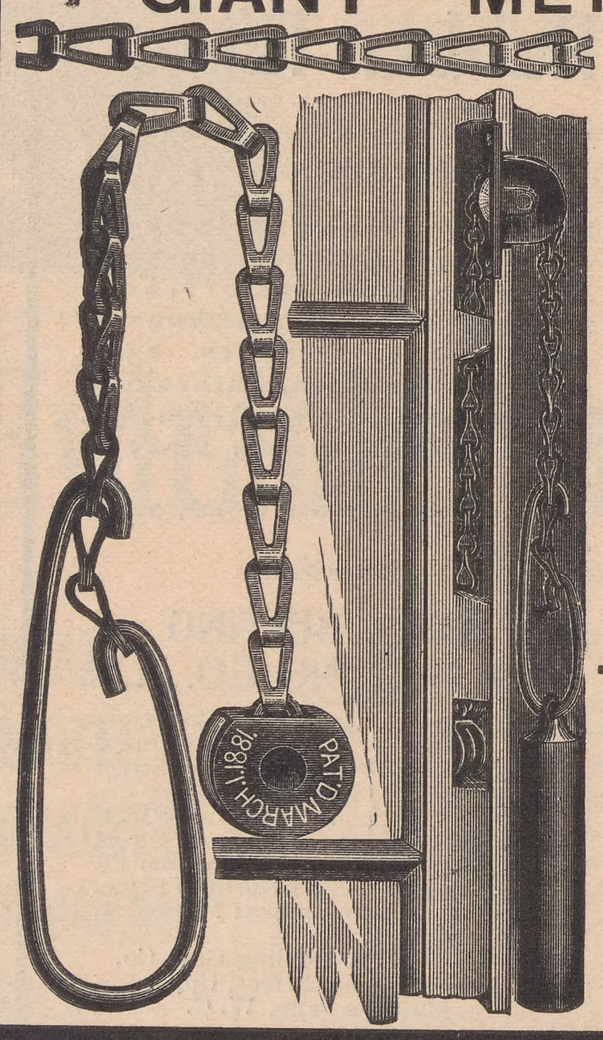

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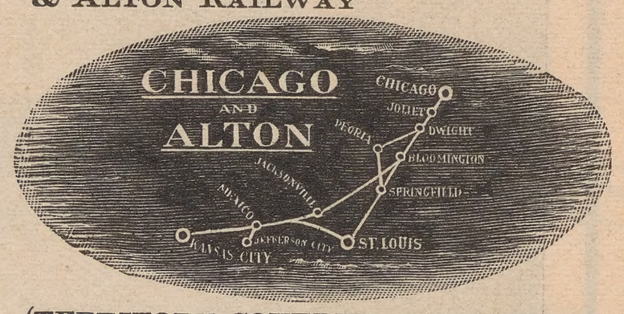

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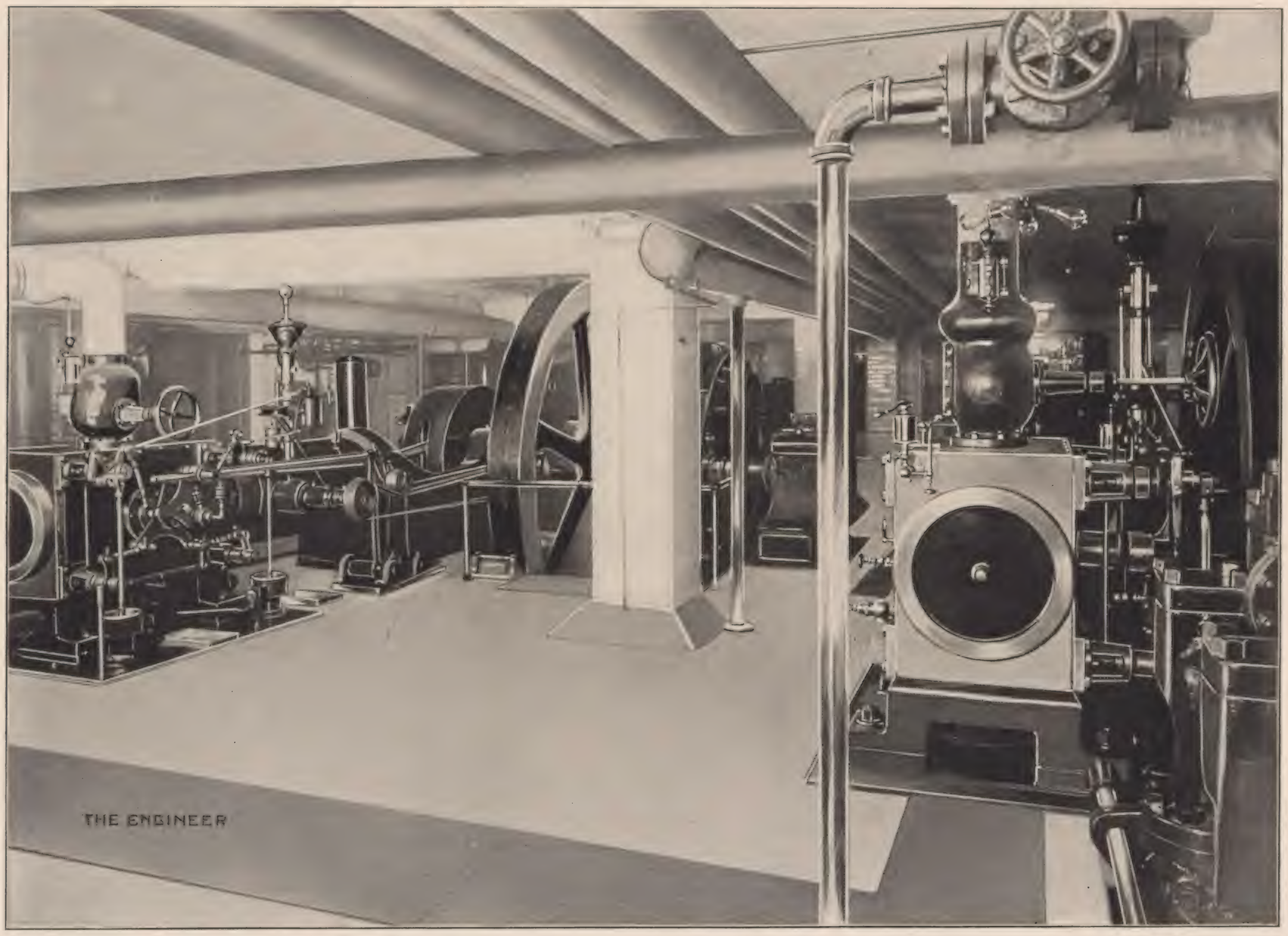

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Retirement of Prof. Ware From Columbia University.

The retirement of Prof. William Roach Ware from the professorship of the architectural department of Columbia University, after twenty-two years of service, in its way calls for more than passing notice. Aside from the great work Professor Ware has done in guiding the architectural students of this university toward a knowledge of the art, if not a proficiency in it, the work by which Professor Ware is most widely known is in connection with the great competitions in which he has been the guide, philosopher and friend of the client and the competing architects. While to Mr. Burnham belongs the credit of laying down the proposition that "Competitions are a necessary evil and must be recognized," to Professor Ware came the duty, by common consent, of acting as expert adviser and umpire in these gigantic contests of architectural talent, in his work of formulating rules for their proper guidance. When the architectural department of the Massachusetts Institute of Technology was organized in 1867 Professor Ware was placed at its head, and it was at that time recognized that to him alone was due the credit of the establishment of this school, for it is doubtful if, but for his availability, it would have been even started. After sixteen years of direction under which the department grew to be the first and best architectural educating medium in the country, the department of architecture in Columbia University was founded, and Professor Ware was called to do for that great school what he had so well performed for the "Teck." This gave him a much wider scope and more extended influence, and this great architectural school is the result of his labors. It is not given to many men in intellectual pursuits to found two such lasting and beneficent institutions, and his retirement can not but cause regret to the many alumni of the "Teck" and Columbia, and to the profession generally, who will join in the hope that many years yet remain to him in which his influence and knowledge will be at the service of the profession.

Chas. F. McKim Receives King's Gold Medal.

The presentation of the King's gold medal by the Royal Institute of British Architects to Charles F. McKim, of New York, in recognition of his work in advancing a reasonable and artistic architecture in the United States, was probably not due so much to a wish to compliment him upon his remodeling of the White House, as to proffer to American architects generally, and to Mr. McKim as their representative, the British architects' appreciation of the work done here. Our hasty and restless growth, the upbuilding of cities in which a year is equal to a European decade, coupled with an architectural lawlessness that too often finds unseemly expression, has been modified and directed by such spirits as that of Mr. McKim, and it is to these that the honor of the King's gold medal is directed. American architecture certainly needs this encouragement, and the appropriate creations of Mr. McKim and his coworkers have done much in the direction of placing an effective and temperate example before the people and stimulated architectural practice as well as, by example, directing its progress.

COMPETITION.*

BY H. B. CRESWELL.

(Concluded.)

THE framing of competitions and the enactment of competitions are, I would insist, purely a matter of business and commercial enterprise. Upon no other basis is their existence intelligible. There is no question of philanthropic motives existing, nor of a mutual scheme for mutual benefit, that I ever heard of. The conditions of competitions as now drawn up may be, in general, very fairly described as a sham legal instrument. It is a sham form of contract wherein the obligations of the competitors are clearly and exactly defined, and the obligations of the promoters set in such loose, ambiguous terms as render them open to any interpretation that subsequent events may show to be most profitable to the promoters. The conduct of a public or limited competition is clearly a matter of contract, and it is the business of each party to see that his interests are properly protected in the terms of that contract. It is therefore weak and futile for competitors to persistently cry out and protest when they find that they have the worst of the bargain. It is usual in such cases for us to charge the promoters with having broken their word, and with having falsified their explicit undertakings; but surely redress for such injury as is here claimed lies not in the oblivion of the sympathetic columns of the professional press, but in an action in the high court. The truth is, however, that it is very rarely that promoters of competitions go back on their precise undertakings, or falsify their explicit promises. This, I observe, is not for any fear of consequences or for conscientious scruples, but from sheer lack of any precisé undertakings to go back upon — an utter dearth of any explicit promises to falsify. When an assessor's award is set aside, or when the winner of the first premium is supplanted in his commission to do the work, there are invariably protests long and loud; pathetic appeals to common honesty and fair treatment from us poor architects, who forget our greedy rivalries for the moment, and are bound in one common sympathy of discontent.

We are continually complaining that it is unfair and an indignity to the profession to expect architects to compete when no professional assessor is employed. Yet fifty per cent of the competitions advertise no professional assessor. Instead, they advertise the absence of a professional assessor. Nevertheless, we respond to that invitation with our modest wagonloads of elaborate drawings. We exclaim that it is an affront to offer a premium and to merge it in the commission. Yet we hustle each other to share in that affront, and the enthusiasm with which we respond to the invitation of the promoters might naturally be expected to further reduce the small proportions of twenty-two competitions in one hundred, which still omit to expressly stipulate that the premium *shall* merge in the commission.

We protest, and take frequent published occasions to flourish the fact in published printings, that the reason we compete and the only inducement to our entering into the competition is that we shall be commissioned to carry out our work and complete the execution of our design. We declare that the premium offered is not a provocation to compete, and we say that, with few exceptions, the premiums are inadequate to repay the cost and the trouble of producing designs and drawings. Nevertheless, in spite of these forcible exclamations, I find in the two years 1894 and 1895 that in fifty-four per cent of competitions there was an express stipulation that the promoters did *not* bind themselves to accept the first design, and in thirty-five per cent that they did not bind themselves to accept any of the designs, and in *none* of the published conditions was a promise made to accept a prize design, nor do I recall any case in which the conditions have contained any such undertaking, although I fancy there may have been a few such cases. And there is no instance, I am convinced, nor will there ever be while competitions are promoted by sound-headed men, of the guarantee being given that the assessor's award shall be binding in respect of the commission. In spite of this bland indifference of our avowed and advertised principals on the subject of competitions, do we depreciate these competitions by standing apart, or are we not rather to be held accountable for the existence of such conditions by our persistent and boisterous participation in them?

The five per cent commission is stipulated to include quantities or extraordinary expenses in sixteen per cent of competitions. The premiated drawings are to be the property of the promoters in seventy-seven per cent; the written rules and the unwritten rules of the profession are frankly ignored, and we give our approval to this state of affairs in the most emphatic manner possible, and proceed to keep this monstrous thing alive and healthy among us, in the face of rebuffs and affronts.

The very assessors who are selected from the pick of us to advise the promoters, themselves become parties to and elaborators of these very usages which we have never found words enough to deplore and execrate.

It has even happened that architects and members of the Institute have acted in the capacity of assessors in competitions where the conditions were not in accordance with the suggestions for competitions published by the Institution; and in thirty-two sets of conditions of competition, which I took as they came to hand from the portfolio kept at the Institute library, I find that out of the twelve cases which provide for the appointment of an assessor no less than eleven stipulate that the premium shall merge in the commission, that ten state that the premiated designs and drawings are to be the property of the promoters, and that in every single case there is an express clause relieving the promoters of responsibility to accept the prize designs, and in one instance of a competition for a £5,500 building with a first premium to merge in the commission, it is stipulated that the five per cent commission shall include traveling and all expenses.

Is it not, I will not say reasonable, but the only conceivable result, that promoters of competitions should treat our wordy protests with small consideration, as evidences only of professional jealousy and professional squabbles, when our weakness, our inconsistency and our scrambling greed are so flagrant and so palpable a denial of all that we say.

What I wish to lead up to is the conclusion that the impracticable and unfair qualities of public architectural competitions as now conducted are not to be laid to the charge of the people who promote them, but are to be entirely laid to the charge of ourselves, who have in all particulars and details made the procedure, traditions and the conduct of competitions just exactly as they are and exist, in every respect and in every particular.

There is nothing unusual or difficult in our situation at the outset. We are dealing with ordinary business men of our own nationality, whose prejudices we thoroughly understand, and who are bound by the same laws as bind us. There is the fair commercial battlefield before us.

When a man or a corporate body — it does not matter which — wants a thing it is his reasonable duty to get it at the fair market rate, and to give no more for the thing he wants than what it is worth. I can not see why British subjects or, indeed, any one else, ought to be placed under an obligation to reconstruct the ordinary bases of business transactions because they may happen to be dealing with the profession of architects. The attitude of these people is perfectly simple and reasonable, and is all, as business men, which we have any right to expect. They make a certain offer for a certain thing, and it is their business to see that they get what they want, and whatever they get they get at *our* price — please remember that, gentlemen — and not at any artificial price.

They get it at the market value, neither more nor less. If they choose to make an attractive offer they can command the ideas of the leading architects of the day. If the offer is an inconsiderable one, they will win only the services of incapable or unsuccessful men who value their services at a low rate, and I feel bound to confess that, as a matter of ordinary foresight, when organizing a competition, knowing that the approval and gratitude of the profession at the offer of a fair premium would possibly take the form of some three thousand deal strainers delivered at my door, I should feel, with all the good will in the world, not justified in offering a sum involving responsibility for such an exuberant display of gratitude.

I insist, gentlemen, that the whole matter is in our hands, and that the issue is clear and easy. We have only to make the demand, not indeed in peevish letters to the papers, or on long-winded occasions of this description, but to make the demand with the ordinary emphasis of men who know what they want, and who mean to stand by the principles of conduct which they know the fulfilment of their wants demand of them.

So surely as we declare in this manner that we will be parties to no competitions of which the conditions are unreasonable, ambiguous or incompatible with personal or professional dignity, straightway such competitions will cease to exist.

Twenty years ago some effort was made to give some real expression to the general conviction that architects should not compete where no professional adviser was employed by the promoters. I refer to the memorial signed by 1,300 architects, who bound themselves not to compete except where a professional assessor was employed, which was presented at the Institution by Sir George Edmund Street in 1881.

What generally is the result of that comparatively limited and local effort? — I say local as affecting only a certain status of practitioners. It is this: That while the Special Commission of 1872 found that a professional assessor was rarely or never employed, at the beginning of this century fifty per cent of competitions advertised the employment of a professional assessor.

I think there is a great deal of what must appear to unprejudiced persons outside our profession as sheer foolishness and nonsense in all the outcry we make. The truth is that it is *ourselves* whom our quarrel is with — with the men who will sacrifice their dignity and walk in lower planes and work for less than what we can bring ourselves to consent to. We want the thing that is offered, but not at the price to be paid; and yet, for all our outcry anent the moral obloquy of promoters of competitions in refusing to accept a design they do not like, I have yet to hear of any case in which the competitor who unfairly was handed the commission ever made any difficulty whatever about accepting it.

From the lofty tone we adopt in these matters we should expect the favored architect to bow, present thanks and decline on the ground that it was a gross injustice to his professional brother who had been awarded the premium, that the profession of which he was a member strongly disapproved of such irregularity, and that, therefore, he must decline to act.

Personally, I am thankful to think that no such prig exists

*Paper read before the Architectural Association at London, March 6, 1903, and published with full proceedings in *The Builder* for March 14.

in our ranks, but if our attitude were really genuine toward competitions, as we declare it to be, this is the attitude we should take individually in being met with a case of that sort. But were we genuine, such cases would not arise, because we should see that the conditions were properly drawn; we should not compete unless their terms and the details of the matter were in accordance with our principles; and if any attempt were made to jockey us, we should find our remedy in a court of law. If we can not keep off unruly competitions by any other means, by all means let us *take the pledge* — let us join a certain active society lately started, and forswear competitions unless they are as we hold they should be. My own interest in that most praiseworthy society is somewhat abated by its formidable propaganda for *talking*. We have surely had enough and to spare of that; it is entirely useless unless architects abstain from competing.

The only way to secure that competitions shall be conducted as we wish them conducted is to have nothing to do with them unless they are as we approve.

THE WELLS BUILDING AT MILWAUKEE, WIS.

THIS great modern office building is now just completed at Milwaukee, by H. C. Koch & Co., architects, where it is one of the most prominent and important of the many fine business structures. It is situated on a commanding site in the heart of the business center, and this, with its immense height and shape — being almost a square — gives the effect of a massive tower, a landmark for a great distance outside the city limits. The architectural features are simple and refined, with sufficient decorative detail to appeal to the artistic taste without affecting the dignity of a truly modern business building. The material used in structural finish being largely of terra cotta, there was an opportunity for the display of elaborate and ornate details in decoration, but the architects, with commendable discretion, allowed only sufficient ornamentation to give a pleasing and harmonious effect to the building as a whole. This may be observed in the illustrations of this great building that appear in this issue, the endeavor being to display to best advantage those features which, taken en masse, give satisfaction to the artistic as well as the practical sense of the architect. The fact that the building stands upon a high knoll has been taken advantage of by the architects very effectively. Looming upward in majestic lines upon its elevated site, it stands a glorious monument to the life and progress of the city as its honored builder, Mr. D. Wells, intended. His main object in its erection was to add to the architectural grandeur of his adopted city.

The entrance, which makes an ornamental feature of the first and second stories, is constructed of ornamental iron. The doorway is a full arch, covering the two stories in height, and is of a rich, dark bronze in color, very impressive, making a fine base for the great mass of white terra cotta above. The decorations of terra cotta are chaste and beautiful, quite sufficient for harmonious effect. The general appearance of the building is that of a great marble structure, strikingly beautiful in its splendid proportions, a strong contrast in architectural style and finish to the adjacent buildings. The Northwestern Terra Cotta Company, contractors for this great work, may well feel proud of this, their latest triumph in artistic construction, for though they are leaders in this kind of work, it is seldom that their contract covers the entire fronts of so large a building.

Our illustrations showing the marble entrance, grand stairway and ceiling of the first and second floors gives some idea of the beauties of this most artistic portion of the building, but it is difficult to portray the full beauty of the fine carvings and beautiful veins in the pure Italian marble. The corridors throughout the building are all finished in this beautiful material. The commodious toilet-rooms are trimmed in dark red Tennessee marble, great slabs of which answer for partitions and make a beautiful and effective room out of what is usually a very ordinary place. The Grant Marble Company, of Milwaukee, contractors for this work, are said to have put in $100,000 worth of marble in the finish of this building.

When the construction of a great office building is under consideration, the architect usually consults with some good engineer and arranges foundations and basements with a view to the installation of the machinery to the best advantage. In planning for this building, the architects were assisted by the engineer, Mr. Henry Lucas, who is now chief engineer of the building. In putting in the foundation, arrangements were made for a very large and expensive machinery plant. It was decided to use nothing but the very highest class of machinery capable of producing sufficient power to supply a large outside contingent with light and heat. A sub-basement was laid out for that purpose containing about twelve thousand superficial feet. As it was found that space could be spared for a swimming pool and safety deposit vaults, this was arranged so as to leave the boiler-room and engine-room connecting with each other and occupying about ten thousand feet of the space.

The engine-room is one of the marvels of the building. As one enters this mechanical reception-room, he gets a view of a regular panorama of finely polished machinery, whirling wheels and great arms dazzling the eye. Motors are flashing and pumps are working out the problem of ventilation and sanitation, generators producing light, heat and cooling beverages; all moving swiftly and silently to that end that the tenants of this building and their neighbors may have all the comforts and conveniences that modern science can give for a consideration. The machine-room itself has a very attractive appearance, its beautiful tile floor and decorative ceiling, and great columns encased in white enameled brick, with its massive marble switchboard, all impress one with the idea that the expense was not spared where comfort and cleanliness were in question.

MARBLE COLUMN, BY GRANT MARBLE COMPANY.

The chief engineer, Mr. Henry Lucas, who has had this whole plant in charge since the plans were under consideration, very kindly explained the salient points of the more important machinery. The prime movers in the plant, as he called them, are really the principal features of the exhibit. They consist of three Reynolds horizontal Corliss engines. These engines were built by Allis-Chalmers Company, the great engine manufacturers of this country for just such plants as this one, where the requirements are very large and the space ample for proper installation. Our illustrations give a general view of their position and importance in this plant. These three engines are of three different sizes — 14 by 36, 18 by 36 and 20 by 36. The shafts are 10, 13 and 18 inches, with a 12-foot drive wheel making one hundred revolutions a minute under pressure of 125 pounds of steam. The engines are all direct connected to the large electric generators, built by the Western Electric Company, of Chicago. Architects may well consider the machinery department of the Wells building in arranging for large machinery plants, as this equipment for power in its application is as fine in construction and as scientifically installed as that of any office building in this country. The economy in the use of large engines has been proven very conclusively in this building by over a year's service.

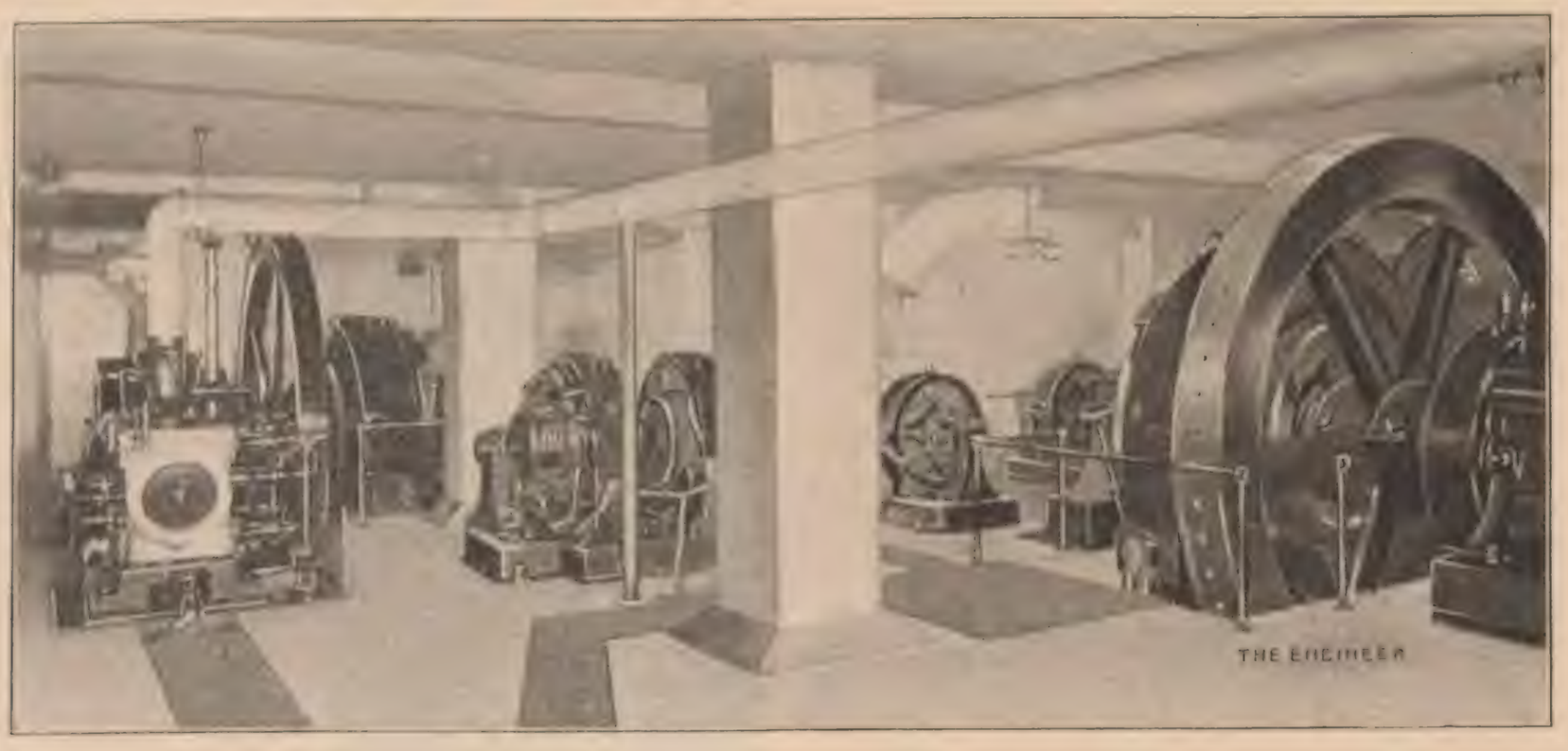
The boiler-room occupies space of about 38 by 85 feet. The coal is conveyed from the alley by an ingenious apparatus like a trolley line. The three great water-tube boilers, giving about ten thousand feet of heating surface, are fitted with all the modern appliances for protection, convenience and economy, even to filtered water.

The steamfitting and all connections for installation, setting of boilers, pumps and ice machines was done under contract with H. Moorers & Co., of Milwaukee. The reputation of this house for the highest class of work is the growth of many years of uninterrupted success.

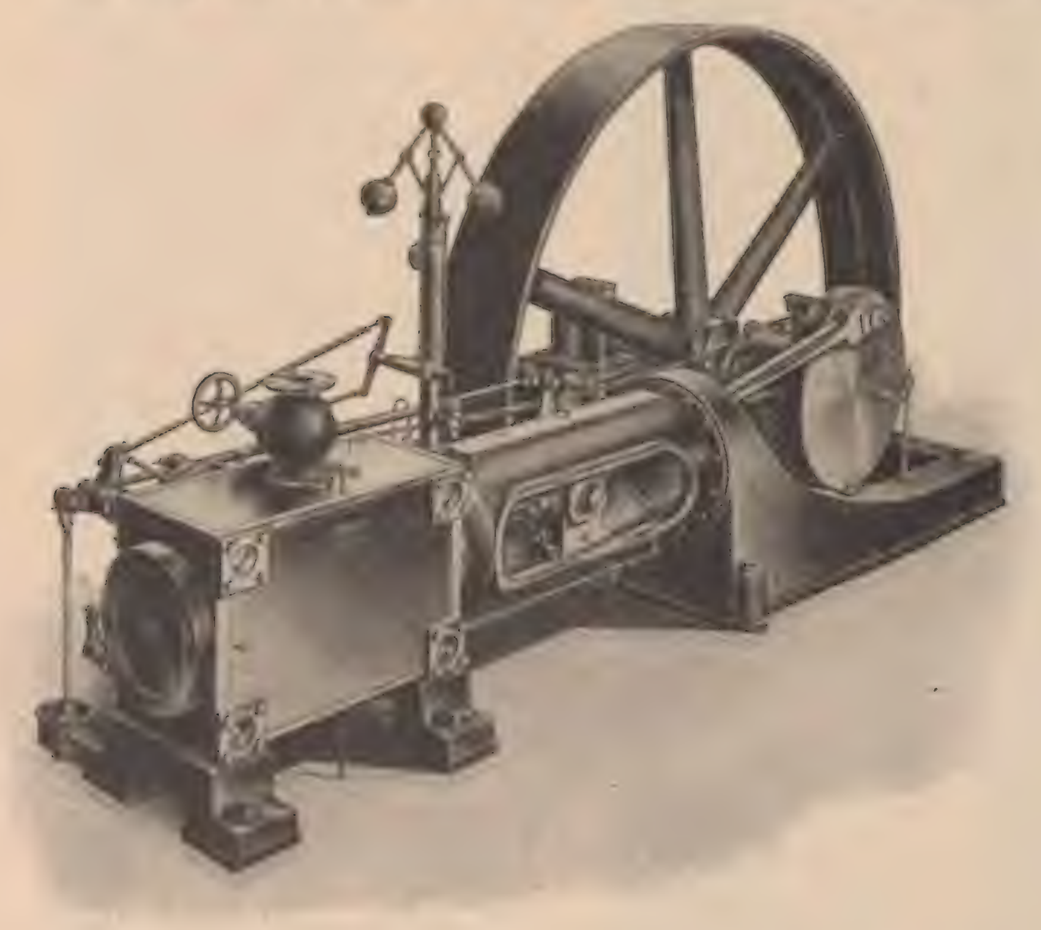
The very elaborate and expensive plumbing and gasfitting was done in this building under the personal supervision of Mr. W. H. Halsey, contractor, of Milwaukee. He introduced a number of new features of great value. The following details and figures will give some idea of the quality and magnitude of the work: The Durham system of piping, consisting of about thirty thousand feet of galvanized pipe, ranging from ½ inch to 6 inches in diameter, was placed in fourteen separate pipe shafts. The water supply pipes are valved complete, so as to meet with any emergency, each riser having a separate shut-off valve at bottom, as well as each floor, and each fixture having a separate shut-off. Joined to this network of piping and distributed throughout the building are the following fixtures: Two hundred one-piece Imperial porcelain lavatories, with N. P. brass trimmings; seventy water closets and thirty-three urinals, all of the very latest and approved pattern, having their pipes and flush tanks concealed back of marble and flushed with push-button device (water closets also have the sanitary brass perfect screw connection in floor); sixteen slop sinks of

Imperial porcelain ware, with enameled iron trap standard. These fixtures were manufactured by the J. L. Mott Iron Works. There has been no expense or energy spared in making this a most sanitary as well as a monumental plumbing job. In addition to the above there are some thirteen showers installed in club quarters on fifteenth floor and a plunge bath in basement. Every sink, lavatory and shower, as well as plunge, has hot water supplied through a system of piping from heater in basement, insuring immediate hot water the instant faucet is opened in any part of building.

In the specifications for the fireproofing the clause requiring that all the structural steel should be covered with a coating of portland cement before the hollow tile was installed, to guard against all danger of oxidization. The fireproofing has been installed according to the best method and this expression has additional weight when it is remembered that the E. V. Johnson Company, which furnished this contract, is managed by, and its methods of fireproofing were originated by, Mr. E. V. Johnson, who not only has been identified with the commencement and growth of modern fireproofing to a greater extent than any other individual, but who evolved a practically non-combustible, as well as modern, system. In this building all beams and girders, and especially the steel columns and trusses, are encased in two-inch porous terra cotta tile. The space in the column between the tiling and the steel is filled with portland cement and in no case is there less than two inches of fireproofing material employed. In constructing the floors steel beams of varying depths were employed, but in all cases these beams framed flush on top. Special skew-back tiling was furnished to accommodate a like depth of beam, so that when the floor was completed a uniform depth of thirteen inches was formed throughout the work. Tests of the floor arches were made under varying conditions and they were found to support a uniform load of eight hundred pounds per superficial foot without deflection. A recent quite important change in the affairs of the E. V. Johnson Company resulted in its purchase by the National Fire Proofing Company, Mr. E. V. Johnson being retained as their western manager with offices at 85 Hartford building, Chicago.



VIEW OF REYNOLDS CORLISS ENGINES AND COMPENSATORS, BUILT BY ALLIS-CHALMERS COMPANY.



REYNOLDS CORLISS ENGINE, BUILT BY ALLIS-CHALMERS COMPANY, CHICAGO.

Among the modern conveniences in the building will be found one of the most necessary — the Johnson system of temperature regulation. This apparatus automatically controls the temperature of every room in the building to any degree desired. This regulation is accomplished through a thermostat located in each office, which, with a series of air piping, is connected to the radiator valves in the office. The thermostat, which is adjustable to any degree of temperature desired by the tenant, automatically turns the steam on to the radiator until the temperature of the room reaches the point where the thermostat is set, it then closes the steam off from the radiator until the temperature falls a degree, when the thermostat again automatically turns the heat on to the radiator.

This system is operated by compressed air, which is generated by an air compressor located in the engine-room in the building.

The Johnson system was installed by the Johnson Service Company, Milwaukee, which has offices and operates in all of the larger cities in the United States.

The interior woodwork and all of the doors of this building were put in by the Conway Veneer Door Company, of Milwaukee. They are especially pleasing to the eye, because of the light mahogany color which is given to the birch veneer. The Conway Company is one of the most prominent and substantial mill concerns and were among the first to introduce the veneered doors to the Western trade.

The two upper stories of this building and a portion of the basement is occupied by the Athletic Club of Milwaukee. This club is one of the most important athletic organizations in the West, outside of Chicago, and has for its officers the leading business men of Milwaukee.

HEATING AND VENTILATION OF RAILROAD AND OTHER SHOPS.

At a recent meeting of the New York Railway Club an interesting discussion took place upon the subject of heating railway shops and other one-story buildings of the same nature. While such buildings are very simple in construction, they are not so simple as might appear in regard to the problem of effectively and efficiently distributing heat and air. On account of the large amount of roof, wall and window surface, the loss of heat is very great, and also, because of this and the relatively great height of the building considered as a single room, there is a tendency toward unequal distribution of the heat, the warm air rising to the roof and the cold air flowing to the floor, where it renders the workmen uncomfortable. It is important, then, not only that a sufficient quantity of heat should be delivered to the building, but also that it should be delivered where it will do the most good.

If an attempt is made to supply the heat directly by means of steam or hot water coils the best results are not obtained. The vicinity of the coils is apt to be uncomfortably hot from the heat radiated directly therefrom, while places at a distance are disagreeably cold. The heat transmitted to the air of the room by contact and convection from the coils is largely lost, since the hot air rises vertically and imparts its warmth to the roof and skylights. It is also to be objected to this system of heating, that it makes no provision whatever for ventilation, the extended system of steam or water pipes is subject to damage by freezing during the coldest weather, and steam pipes have been shown to be frequently the cause of fire where they came in direct contact with wood or other inflammable materials.

Due principally to the reasons which have been given above,

the direct system of heating for work of this character is falling into disfavor and is being superseded by the fan or hot-blast system. The apparatus required for the latter consists usually of a steam coil for heating the air, an engine or motor-driven fan for propelling the air through the heater and to its destination in the shop, and a system of piping or ducts leading it where it is needed. The heater will contain a considerable less length of pipe than would be required for direct heating, due to the higher velocity of the air over the pipe surfaces. The blower is additional equipment, but its use would be justified on the score of ventilation alone, something which is hardly considered at all in the direct system of heating. The exhaust of the engine is usually turned into the heater, thus obviating any loss from that source.

The distribution of the air by means of pipes should be so carried out that the lower part of the room is kept at a comfortable temperature, while at the same time no disagreeable drafts are produced. It has been found that by properly proportioning and directing the delivery flues most satisfactory results can be secured. Illustrating this point some very interesting examples were cited, at the meeting mentioned, by Mr. C. H. Gifford, of the B. F. Sturtevant Company. He said:

"In the first place, if you desire air or almost any other form of gas or substance at any particular place at any particular time, the best way is to provide a suitable conduit to deliver it there, and I would add, if there is any difficulty, which there may be, by air blowing on an individual workman, it is a simple mechanical detail to rectify it, and, if you are unable to predetermine where the men or machines are to be located in a building, you can simply have an adjustable discharge opening from the pipe delivering the air, and if, perchance, it blows upon some one there generally is some space near the person to which the air can be directed and therefore cause no inconvenience whatever.

"As an example of what can be accomplished by distribution, I have in mind a machine shop, that of the New York Shipbuilding Company, which, as a machine shop, is not dissimilar to one designed for railroad work. They have a building which I believe is about 1,100 feet long, about 250 feet wide and 82 feet high. The proposition was to heat one-half of this building and leave the balance of it unheated. It was a problem that came to me, and I must say that I was a little phased at attempting to heat one end and not have any interference from the other end. We, however, conceived the idea that there could be a partition put across the middle of the building about 12 feet high, and we could then bring the heated air down to the zone which it was desired to heat, which was not over 8 feet above the floor, and in that way we could perhaps confine the air in the space, and not have very much effect on the rest of the building. It was something of a speculation and rather a bold attempt, when you consider entering into a guarantee which might involve a serious loss; nevertheless it was done.

"The apparatus is arranged under the landing platforms of the gallery which surrounds the shop, so that it is out of the way of the cranes. Pipes are carried along beneath the runway of the cranes, and branches are brought down on the posts and discharge the air toward the floor, the outlet being in the form of a Y, which is adjustable.

"We were very much gratified, after the plant was started, to find that it performed just as was expected it would, and it is surprising to note the difference in temperature between the two sides of that partition; it is almost the same as when you pass from the building out of doors. The result is simply due to the fact that the air was brought down and continually pressed down into the space which it was desired to heat."

GEORGIAN BAY AND THE 30,000 ISLANDS.

WHEN Champlain learned from an Indian that to the northwest of Montreal there was a large body of water that was said to be salt, he set out with the hope of finding the "Northwest Passage." He did not find what he sought, but, says Robert Craik McLean, in *Country Life in America,* he discovered what is now known as Georgian Bay, the smallest and most easterly of the Great Lakes. Leaving Montreal, he, with two Indians for guides, paddled up the Ottawa river in a birch-bark canoe to Lake Nipissing. Passing through this great lake to its westernmost extremity and entering French river, a stream of wonderful beauty and grandeur, he finally reached the broad expanse of Georgian Bay.

Here he found Huron Indians, who told him of a large settlement of the tribe on the south shore of the bay, which he determined to visit. Passing down the east shore, he found that for miles outward from the mainland the coast presented an endless archipelago, the rocky pine-covered islands numbering, according to a late surveyor, "one hundred islands for each day in the year."

Near where Penetanguishene is located, he found an Indian village of several thousand people, and in the most advanced state of civilization he had encountered among any of the Indian tribes. These were almost exterminated, early in the next century, by an incursion of the Iroquois from the south.

Leaving here, Champlain pressed through an unknown country eastward, across Lake Simcoe and down the valley of the Trent to the Bay of Quinte into Lake Ontario, and returned to Montreal.

The country thus traversed, singularly enough, except for the visitation of the lumberman and a scattering settlement, remains to this day as wildly picturesque and as full of the wild things of forest and stream as when the great discoverer first penetrated its forests. It comprises what is now known as the Muskoka district, with its lakes and eight hundred miles of shore line, the Lake of Bays, Kawartha lakes, all centering this beautiful wilderness of which the Georgian Bay islanded coast forms the western boundary.

But modern civilization has brought to it railroads and steamers, and these, the people who appreciate the natural beauty of lake and forest. Hotels have been built everywhere along the waterways, the islands are becoming inhabited in summer, and the recreation ground that gives pure air and perfect freedom has been found, and the fact that the Grand Trunk Railway took seventy thousand people into this country last year shows how attractive it has become.

The weather in the Georgian Bay country is never uncomfortably warm, because the hot southwest wind is tempered by the great bay to the westward, and the water is always warm enough in the summer for comfortable bathing.

There are several ways in which this region and its islands can be visited and enjoyed. A house-boat can be secured for the season at Penetang and towed to any desired locality. These are well fitted out and guides and boats supplied to any extent required. A Mackinaw fishing-boat, the safest and best form of two-master afloat, can be hired, and the weeks spent cruising among the islands. Steamers make the round trip from Collingwood to Mackinac Island and the Sault Ste. Marie, through the North channel, the voyage taking a week. Tents can be taken and, a skiff or canoe being hired, any one of the islands can be appropriated and the tent pitched; the steamer leaving and taking up the passengers when and where required.

Perhaps the most attractive plan of all is to cruise in canoe or dingey, day after day, among these pine-covered islands, camping at night on their shores, and only an occasional Indian to be met with until civilization or the steamer is again reached.

Experience in both the Muskoka district and the Georgian Bay with bass fishing varies. The fish are everywhere, but sometimes the most attractive angleworm fails to tempt them, and, again, sixty fish in sixty minutes is a feat that can occasionally be accomplished, though twelve fish to a rod per day is the Canadian law. Two deer to a gun in the two weeks of open season is the limited allowance of the deer-hunter; but as even the novice is certain of securing his legal number of fish or of deer, the supply is not likely to be exhausted.

Aside from the forms of recreation mentioned, there is the hotel life that is found everywhere, and here it is at its best; for the excursions, boating and fishing by day and the camp fires at night minimize conventionality.

THE "SPENCE" WATER HEATERS, FOR HEATING BY HOT WATER.*

NO matter what style boiler you select, to get the best results you must become familiar with it. The management of that one which is the easiest, and whose construction does not involve any complicated pieces of apparatus, will be, of course, an easy boiler to become familiar with.

The Spence is such a boiler. The thousands in use testify the good results that are obtained with it, and it follows that the citizens using these boilers have become familiar with them from the first day of their instalment.

The Spence hot-water heater has been in use for over thirty-five years. When it was first placed upon the market, it stood without a rival. Since then, improvement upon improvement has been added, and to-day it continues to lead in the race for superiority. Nearly fifty thousand of these heaters are in successful use in residences, hotels, stores, office buildings, churches, schools, banks, laundries, conservatories, poultry-houses, public buildings, baths, railway depots, etc., in every part of this country and Canada.

We will here define as briefly and concisely as possible the many good features which enter into the construction of the Spence heater, the reputation of which was firmly established long before the existence of many of its present competitors.

The Spence is constructed in circular sections. These are of two patterns, one having a single smoke flue in the center, and the other a number of smaller flues near its outer circumference. These sections are placed alternately one above the other. One can readily see that under this arrangement, the heated gases, unable to escape to the chimney in a direct line, are retained until they have been utilized to the best possible advantage. Enough sections are employed to absorb all available heat when the heater is running to its full capacity, so that none is wasted.

The fire-pot section consists of two hollow rings, top and bottom, connected by a series of vertical double passages, with a solid bridge wall between them. The corrugations due to

*From *The Boiler Magazine*, Kellogg-Mackay-Cameron Company, Chicago

this form of construction provide for a largely increased heating surface and free admission of air at the edge of fire pot, so perfect combustion is secured. The surfaces directly above the bed of coals are placed at a distance just calculated to be exposed to the heat effect of the expanding products of combustion when these are evolving the greatest amount of heat.

HOLLOW TILE VERSUS CONCRETE CONSTRUCTION.

IN warning architects against the structural use of concrete in place of steel beams and columns, because of the many accidents that have occurred in the erection of this class of construction, the *Engineering News* questions the motive which actuated this journal in what it calls a bitter attack upon concrete as a material for fireproof structures. The standing and presumed honesty of our esteemed contemporary can not be denied, but this journal speaks, in the article referred to, as the adviser of the architect in a matter that is so generally known to most of the profession as to make the advice seem useless and in a manner that indicates not only a knowledge of the subject but a conviction born of experience.

The many excellences of concrete need no defense, even by the *Engineering News,* and it is even probable that the architect is more conversant with the varied forms in which it is beyond all question the best constructive material, but the theory of non-combustion and the practice of fireproofing with it is not one of them. That it is possible to construct a monolithic building of concrete without accident is only the exception that proves the rule, and even the most enthusiastic of the supporters of such so-called fireproofing methods as are covered by the several combinations of wire, large and small, in combination with concrete, where they have architectural knowledge to guide their judgment, insist, as the article under criticism by the *Engineering News* did, that columns, girders, beams and structural parts generally should be made of steel.

It is not the habit of this journal to controvert by counter charges, and it is not here intended to do so, for, of course, the *Engineering News* stands on a concrete basis of honest conviction which is patent to all who are familiar with its contents. A brief review of its advertising pages would, to the unprejudiced mind, at least, indicate that there was a slight motive for bias even in the presence of strong conviction. In scanning these pages the curious may find thirty-two advertisements of cement and kindred materials; ten patent floor systems, the basis of which is concrete, and only one—and that of a company almost unknown in fireproofing circles—that makes hollow tile. Of course, this is not the reason for this strong defense of concrete structural work on the part of the *Engineering News,* but rather the engineer's belief in the strength of concrete, which he has proved, and in its adaptability, which he takes on theory and refuses to note its practical failure. This journal attempted in a perfectly just and impartial manner to note a few of these failures and its motives are at once impugned by the expert engineer. But the *Engineering News* asks some plain questions that ought to have at least some brief answer. It says:

> On this basis we ask our contemporary to consider a little as to what its advice really involves. It has in mind, doubtless, when it compares concrete and hollow tile construction, such structures as office buildings, stores, schools, libraries, hotels, buildings for public assembly and the like. But suppose there walks into the office of one of the architects whom our correspondent seeks to advise, a client who wants a building of an entirely different sort. It is perhaps a building for heavy manufacturing; a paper mill, or a sugar refinery; or perhaps it is a heavy warehouse. The floors must carry heavy machinery and must stand up uninjured notwithstanding the effects of vibration, of shock, or of heavy loads rolled over them or dropped upon them. Very likely in addition it is required that the floors shall be waterproof.
>
> If our contemporary is sincere, it must acknowledge that in buildings for heavy manufacturing and storage purposes hollow tile is wholly out of place and concrete is undoubtedly the material to use at the present day. But with this admission made a further step must be taken. If concrete is better for the heaviest class of buildings, where the severest service and the greatest stresses are sustained, is it logical to turn it down as unsafe in buildings where the loads and stresses are far smaller?

All this can be summed up in a few words and for instances need not go beyond Chicago, where hollow tile and steel beam, girder and column construction was first introduced and where it has made itself a permanent and reliable construction. It is kind to admit that this construction has its uses in office buildings, etc., but it is singular, yet true, that at least as great a value has been placed upon it by those who have constructed and used hollow tile in just such "buildings for heavy manufacturing and storage purposes" as our contemporary particularizes. Fifteen years ago John Root designed the largest printing establishment in the West for Rand, McNally & Co. The first five floors for offices and four above for printing purposes. If this hollow-tile construction was not stable, would rows of presses, some of them weighing one thousand pounds to the square foot and a lateral motion of immense power, be placed and for fifteen years run without vibration on these upper floors? Fifteen years ago the writer saw the Brand malthouse piled to the ceiling with malt, in which the floors were of hollow tile made of six-inch tile arch and fifteen foot span. No accident has yet happened to these floors constructed to carry one thousand pounds to the square foot. In storage warehouses, the Sibley warehouse, the Produce Cold Storage, and in heavy hardware, the heaviest structures yet built in Chicago, the warehouses for Hibbard, Spencer, Bartlett & Co., and Reid, Murdoch & Fisher, and if the engineer wishes an example in his own particular field, the half-dozen viaducts over the Illinois Central tracks will furnish an adequate one, as this is of hollow tile construction and is wholly an engineering product. In fact, there has never been the slightest disinclination upon the part of architects, as far as we have observed, to use hollow tile on any structure because of its lack of strength, and it is absurd for a journal with the decided concrete leaning and lack of architectural knowledge like the *Engineering News* to controvert the plain statements of fact and opinion based on experience made in these columns, and charge or imply a possible prejudice. We stated in substance that concrete construction, as in the instance cited at Milwaukee, is unsafe, and gave reasons that if it were all that its most ardent supporters claim for it that it is absolutely unscientific and everything unsuitable when there was so perfectly adequate and thoroughly tested modern method with everything, even its cheapness, to recommend it. If our opinion were for sale, we would probably be running large amounts of concrete advertising. Since it is not, the business department of this journal and its editorial functions are separated both in theory and in fact.

MEETING OF ILLINOIS BOARD OF EXAMINERS OF ARCHITECTS.

THE Illinois Board of Examiners of Architects held its June meeting at the University of Illinois on the 16th, and its semi-annual class examination was continued through the 17th and 18th. The board licensed Will Levy, a practicing architect of St. Louis, after an examination by exhibits. Fifteen candidates took the class examination. At an adjourned meeting, held in Chicago July 1, the board licensed Horace B. Mann, a practicing architect of New York city, after an examination by exhibits. The report of the examination committee on the class examination held June 16, 17 and 18, was received, and after an examination of the work of the fifteen candidates by the whole board, the recommendation of the committee that eleven members of the class receive licenses was adopted. The following are the successful candidates in order of merit: Max Goldberger, Charles D. Waterbury, Clair F. Drury, J. G. Steinbach, Milton James Whitson, G. F. Shaffer, George E. Morris, Melville C. Chatten, Jens C. Petersen, Louis F. Brayton, Ellsworth P. Storey.

The board adopted a new form of application for examination, which is now ready, in which, however, the twelve questions are not changed. But it has been improved in other respects. Those having copies of the old form who have not yet filed their applications would do well to exchange them at the secretary's office.

The next meeting of the board will be held September 11. Architects will do well to remember that renewal fees must be paid before the end of July. PETER B. WIGHT, *Secretary.*

PAINTS IN ARCHITECTURE.

SPECIAL TREATMENT.

HAS it ever occurred to any one that, in painting, different woods require different treatment? Of course, in ordinary practice knots and resinous places are "stopped" with shellac before painting; but we see every day the same general procedure used in the painting of white pine, yellow pine, poplar and cypress. That iron and steel work are not included in the same category is probably due to the fact that such work is under the control of engineers rather than of painters.

It is undoubtedly possible to make paint hold to yellow pine and cypress quite as tenaciously as to white pine and poplar, but not by the same treatment. The first-named woods are resinous and full of paint solvents, therefore this resin must either be sealed in the wood or made to combine into a firm compound with the primer. To accomplish the first-named result shellac is about the only available material, and if used should be applied over the entire surface and not merely at the worst spots. To accomplish the second-named object perhaps a small proportion of good hard varnish gum and a little turpentine in the priming coat might prove effective.

Speaking with diffidence on a subject yet open to experiment, it might be well worth trying a priming coat of pure zinc in refined oil with about one per cent of high-grade kauri and turpentine rubbing varnish; to be finished with two coats of straight zinc in refined oil, with or without a proportion of lead or whiting. The French authorities generally recommend the grinding of some whiting with their zinc. CHARLES JOURDAIN.

MOSAICS.

THE Interstate Building Supply Association will hold their semi-annual meeting at Detroit, Michigan, August 4 and 5; headquarters at Hotel Cadillac.

CHARLES F. MCKIM, of McKim, Meade & White, received the King Edward Gold Medal which was awarded by the Royal Society of Architects at the annual dinner of the Royal Institute of British Architects, given at the Hotel Metropole, London, June 23.

MR. WILLIAM BURLINGHAM has accepted an appointment as chief engine designer with the B. F. Sturtevant Company, of Hyde Park, Massachusetts, resigning a position in the United States Inspection Office with the William R. Trigg Company, of Richmond, Virginia. Mr. Burlingham has previously been associated with the Bath Iron Works, the General Electric Company,

the Southwark Machine & Foundry Co. and the Newport News Shipbuilding & Drydock Co. He has also served on Mr. T. A. Edison's staff at the East Orange Laboratory, and is a graduate of the Worcester Polytechnic Institute.

ARCHITECTS HOGAN & SLATTERLY, of New York, seem to be in a fair way to recover their commissions in the twenty suits which they have entered against the city since their removal from the position of city architects for political reasons, the juries in the first two cases having made them the awards claimed without hesitation.

CHARLES G. BLAKE & Co., of Chicago, have just secured the contract for the George F. Swift mausoleum, to be erected at Mount Hope cemetery. The mausoleum will contain twelve crypts. The design is in the Grecian Doric style and will be built of gray granite, with interior finish of Italian marble. The windows will be opalescent glass, the gates and grilles of bronze.

WHERE the architect desires a typewriting machine of low cost and perfect as the best in action, much easier to learn than those known as universal keyboards, for his own use, the "Lambert" is becoming popular. Its use in specification writing is beyond question the best, as it has all the characters necessary, and the manipulation is so simple that the office-boy learns it readily. It is the latest improvement on a machine that seemed perfect.

FRANCIS S. SWALES is announced as the winner of the Washington University, St. Louis, Traveling Scholarship, Albert D. Millar receiving honorable mention. The competition consisted of three rendered and three sketch problems. The drawings of Mr. Swales were placed first for their uniform excellence and the virility of design and clever draftsmanship for which his work has been favorably known heretofore. Mr. Swales' natural gifts, together with considerable office training under various good men, should form an excellent foundation for the term of serious study abroad made possible by his present success. For a special study Mr. Swales has chosen the great theaters of Europe, a subject which he has already become interested in by reason of his employment on a number of the important theaters recently erected.

PLANS for the expenditure of nearly $20,000,000 for permanent improvements and extensions on the lines of the New York Central & Hudson River Railroad have been prepared. It is expected that a very large part of the projected work will be completed before the end of this year. No less than 469 new steel bridges, with an aggregate length of one hundred and twenty-five thousand feet, single track, are included in the improvement plans. These bridges, containing about one hundred and thirty-three thousand tons of steel, will cost over $5,000,000, apart from the new foundations which will be built in many cases. It is estimated that 480,805 cubic yards of concrete foundations and wall will be required in the projected betterments on the New York Central. Fifty-two new passenger stations and thirty-five new freight-houses are also contemplated.

CLIMBING mountains is a fascinating and invigorating pastime. It develops not the body only, but the mind. The Alpine Peaks of Switzerland have their counterpart in our own country, in the Sierras, the Cascades and parts of the Rockies. The greatest glacial peak of the United States is Mount Rainier, in Washington, more than 15,500 feet high. This magnificent mountain has fifteen or more giant glaciers creeping down its sides and discharging their glacial detritus into the Columbia river or Puget Sound. A climb to the summit of this peak is a mountaineering feat worthy of any mountaineer. For 25 cents Charles S. Fee, general passenger agent of the Northern Pacific Railway, St. Paul, Minnesota, will send to any address an illustrated booklet called "Climbing Mount Rainier," describing a climb over the glaciers to the top of the mountain.

CONSIDER Colorado as a place to spend your summer vacation and you will find that it meets the requirements. Colorado has been brought nearer the East by the fast train service of the "Burlington"—only one night on the road from Chicago or St. Louis to Denver. The railroad fare is low during the summer—about one-half the regular fare, and on certain days less than half. Colorado has hundreds of moderate-priced hotels and boarding-houses—more perhaps than any summer resort country, and the prices range from $8 per week upward. Nowhere can be found such a glorious combination of climate and scenery as in Colorado. The air invigorates, strengthens, revives—it is nature's own tonic. All the outdoor sports that can be enjoyed anywhere are possible in Colorado. Plenty of golf courses and the finest kind of trout fishing. Just consider these facts for a minute and then write General Passenger Agent P. S. Eustis for a copy of the Burlington's "Handbook of Colorado." It does not attempt a description of Colorado's charms, but it does tell facts about two hundred or more hotels and boarding-houses—shows the location, how reached, name and address of proprietor, rates by the week and month, principal attraction, etc. There is no charge for a copy of this pamphlet, and Mr. Eustis will be glad to send copies to your friends.

IN the June *Arrow*, Rufus, the Roofer, says: "There is one thing you ought to know by now, and that is that you've got to treat even good tin respectful like. I've seen some metalworkers use a good heavy-coated terne plate in a way that would make a macadamized road shrink up. When your tin roof is down, keep off it as much as possible. A tin roof is not a driveway for speeding steam shovels on. Neither is it a place to try hob-nailed boots. Don't let the masons dump brick and mortar on it, or the carpenters throw planks with nails in them upon it. That is, if you want a good tin roof. You've got to use a roof as well as a tin roof should be used if you want a good roof, no matter what tin you put upon it. The man that expects a tin roof to take anything that comes along in the way of rough usage while the roof is going on, would use a grand piano to keep his potatoes in and then wonder why it did not sound well. The better the tin the better care you should give it putting it on. A good roofing-paper should go under every tin. Use the best solder you can get and paint the tin as soon as it is laid. It doesn't do any tin good to paint the rust that has settled on it over night. There are some architects and builders who have an idea that there are a good many 'Taylor Old Styles,' or at least a good many tins like it. They do not come right out square and say 'Taylor Old Style.' They say '"Taylor Old Style" or equal,' or 'an extra heavy roofing terne,' or 'an old-style, hand-dipped tin.' They beat about the bush, and in the end they do not get anything just as good. It is always best to have the name with you. You can not get away from the name."

ASSOCIATION NOTES.

CLEVELAND ARCHITECTURAL CLUB.

The ninth annual meeting of the Cleveland Architectural Club was held June 12 at the rooms of the Associated Technical Clubs in the Arcade. There was an unusually large attendance and much interest over the announcement of the winner for the scholarship which was awarded as a prize for six competitions which were participated in during all of last winter. The scholarship was for $200 to Columbia University and was won by John F. Steffens, a draftsman with W. R. Watterson. Alexander C. Wolf, with Meade & Garfield, was second, and Charles Uthe third. The scholarship was a donation by the architects of the city, and the subject of the competitors was an "Ideal Clubhouse."

Frederic William Striebinger, who was president during the past year, was reëlected unanimously. Mr. Striebinger said the club had every reason to feel proud of its work and referred to the scholarship fund, saying, "The end was accomplished, and I hope the competitions held will begin a series of yearly scholarships that may be the means of assisting many young men." President Striebinger made $150 for the club during the year by issuing a handbook, and the reports show growth generally along financial lines, as well as numerically.

The officers elected aside from Mr. Striebinger were: Vice-president, Herman Kregelius; secretary, L. F. Fewsmith; treasurer, G. B. Bohm; librarian, H. B. Fairfield; chairman of current work committee, James Bowman; chairman of entertainment committee, Alexander C. Wolf.

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The Postum Cereal Company, Ltd., of Battle Creek, Michigan, are asking for rough sketches or designs to be sent to them for approval and final acceptance, and completed details of a one-story demonstration booth or pavilion to be constructed in the Agricultural building at the World's Fair; the height is not to exceed 15 feet, corner space 35 by 43 feet. Design to cost not over $6,000.

OUR ILLUSTRATIONS.

Residence, Evanston, Illinois.
Residence, St. Louis, Missouri.
Residence, Cincinnati. Werner & Adkins, architects.
Residence, St. Louis, Missouri. Weber & Groves, architects.
Residence, St. Louis, Missouri. W. Albert Swasey, architect.
Residence, Los Angeles, California. Hunt & Eager, architects.
St. Luke's Hospital, Los Angeles, California. R. M. Milligan, architect.
Residence, St. Louis, Missouri. Barnett, Haynes & Barnett, architects.
Residence of George Daggett, Minneapolis, Minnesota. L. A. Lameraux, architect.
Interior Views, the Wells Office Building, Milwaukee. H. C. Koch & Co., architects.
Entrance Detail, Hotel Angelus, Los Angeles, California. John Parkinson, architect.
Photogravure Plate: Exterior View, Wells Office Building, Milwaukee, Wisconsin. H. C. Koch & Co., architects.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Residence, Chicago. W. A. Otis, architect.
Entrance Detail, Wells Office Building, Milwaukee. H. C. Koch & Co., architects.
Bryn Mawr Hotel, Bryn Mawr, Pennsylvania. Furness & Evans, architects, Philadelphia.
Institute for the Blind, Overbrook, Pennsylvania. Frank Miles Day & Brother, architects.
Mount Airy Presbyterian Church, Mount Airy, Pennsylvania. Joseph Huston, architect, Philadelphia.
Interior View, Wells Office Building, Milwaukee, Wisconsin. H. C. Koch & Co., architects. A double-page view.

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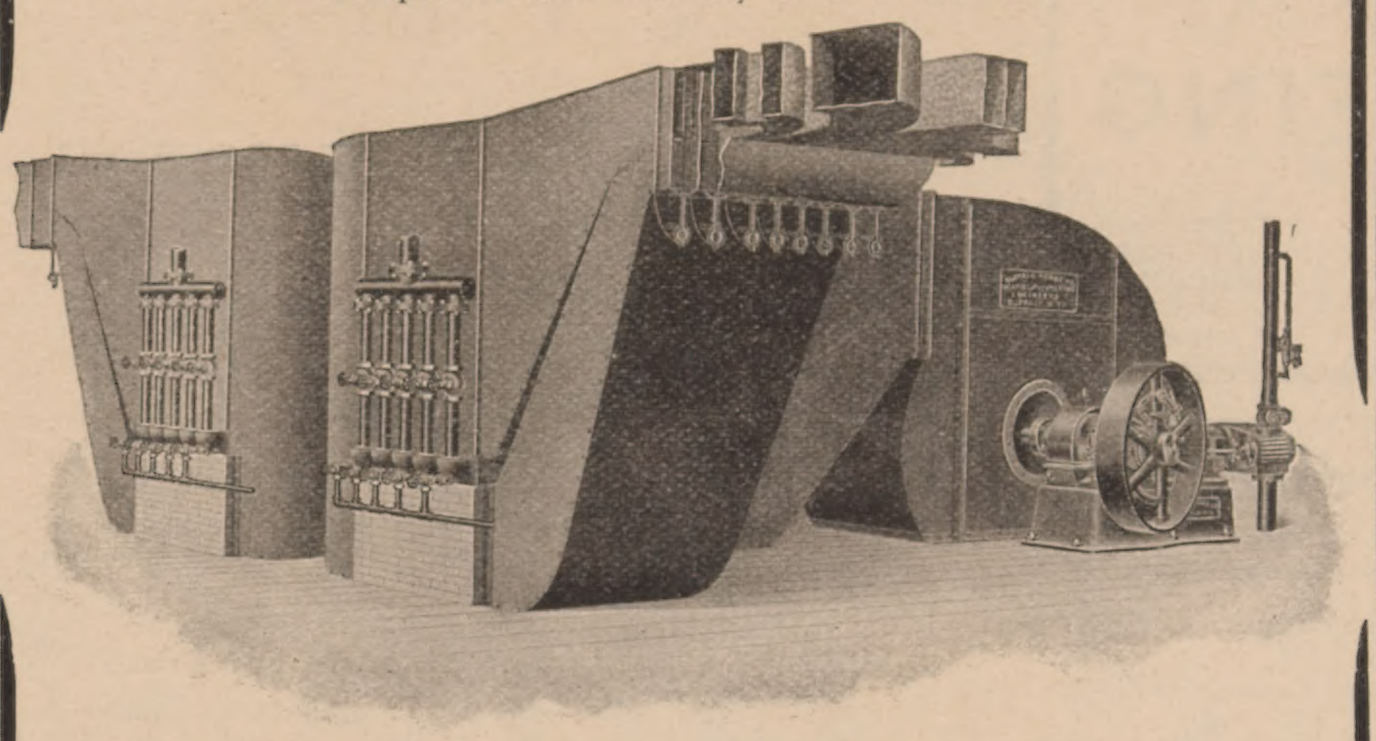

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